

GB
Gardner
Bender

Instruments

GDT-311

3 Function, 11 Range Digital Multi-Meter

Owners Manual

- Read this owners manual thoroughly before use and save



3131884
CONFORMS TO UL 61010-1
CERTIFIED TO CAN/CSA-
C22.2 No.61010-1

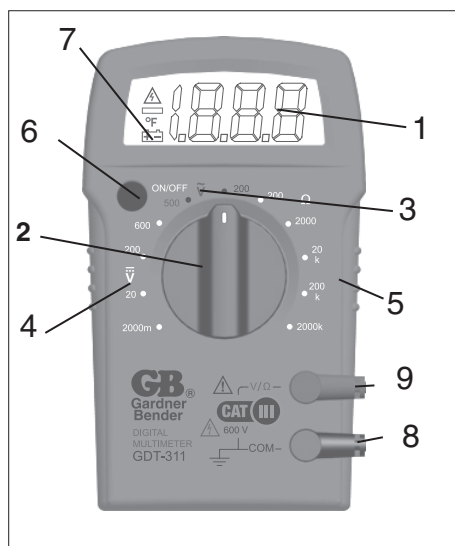
- 6) Discharge a capacitor before measuring it.
- 7) Remove the test leads from the circuit being measured as soon as the test is completed. Never reset the function/range switch to another range while the leads are still in contact with a circuit.
- 8) Do not measure voltage when the function/range switch is set on the resistance (ohms) setting. Do not measure current when the meter is set on the resistance range. Never measure AC voltage when the meter is set on DC voltage. Setting the meter on the incorrect function may burn out some of the internal circuitry and may pose a safety hazard.
- 9) Damaged meters are not repairable nor is calibration possible. Damaged meters should be disposed of.

3.0 Operating Suggestions

- 1) Set the function/range switch to the proper position before making a measurement. When the voltage is not known, it MUST be determined that the capacity of the selected range will handle the amount of voltage or current in the circuit (See #3 under "For Your Safety").
- 2) Avoid placing the meter in areas where vibration, dust or dirt are present. Do not store the meter in excessively hot, humid or damp places. This meter is a sensitive measuring device and should be treated with the same regard as other electrical and electronic devices.
- 3) When the meter is not in use, keep the meter turned on to keep the battery from discharging.
- 4) When disconnecting the test leads from the unit, always grasp the leads where the input jacks meet the tester housing. Do not pull the leads out of the jacks by the insulated wire or transport the tester using the test leads as a carrying strap.
- 5) **WARNING** Do not immerse the meter in water or solvents. To clean the housing use a damp cloth with a minimal amount of mild soap.

NOTE: With any measurement made by this meter, there will be some fluctuation of the digital display. This is due to the meter's sampling method. This unit samples at a rate of 2 times per second, thus the fluctuation of the readout.

1.0 METER FUNCTIONS



Meter Type: manual
Functions: 3
Ranges: 11
Display Count: 2000
Input Impedance: 10 Meg Ohm
AC Volt Ranges: 200 / 500 (2.5% + 5 digits)
DC Volt Ranges: 2000m V / 20V / 200V / 600V (1.2% + 2 digits)
Resistance Ranges: 200 / 2k / 20k / 200k / 2M Ω (1.5% + 2 digit)
Operating Environment
Indoor Use
Operating Temperature: 0°C – 40°C
Storage Temperature: -10°C – 50°C
Relative Humidity: 0% – 75%RH (0°C – 31°C)
0% – 50%RH (31°C – 40°C)
Altitude: Up to 2000m
Ingress protection degree: IP20
Pollution degree: 2

Battery Type: 9 Volt
Battery Life: 100 hours with carbon-zinc cells, 200 hours with alkaline cells under normal conditions.
Overrange Indication: The three least significant digits are blank and the number "1" is displayed at the left when the range capacity is exceeded by the input.
Polarity Indication: "-" is displayed for negative polarity
Size (LxWxH): 139.2mm x 82.8mm x 30.3mm (includes rubber boot)
Weight: Approximately 170g (includes battery)
Test lead type: ETL, cETL, CE, CAT III 600V 1A

Agency Approvals: ETL, CE, CAT III 600V
Note: Accuracy is given for one year at 23°C \pm 3°C rH<70%

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2.0 READ FIRST: IMPORTANT SAFETY INFORMATION



Read this operators manual thoroughly before using this multimeter. This manual is intended to provide basic information regarding this meter and to describe common test procedures which can be made with this unit. Many types of appliance, machinery, and other electrical circuit measurements are not addressed in this manual and should be handled by experienced service technicians.

The marking "▲" on the equipment represents Caution, risk of electric shock.

The marking "▲" on the equipment represents Caution, risk of danger.

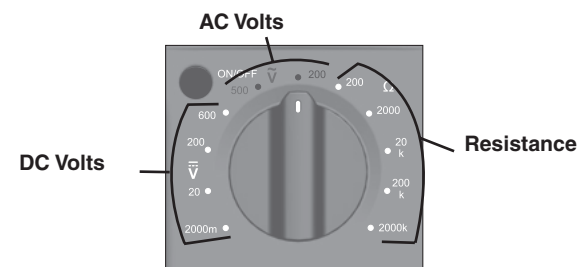
The marking "⏏" on the equipment represents Functional earth terminal.

The marking "□" on the equipment represents Equipment protected by DOUBLE INSULATION or REINFORCED INSULATION.

Use extreme caution when using this multimeter. Improper use of this meter can result in severe damage to property, severe personal injury or death. Follow all instructions and suggestions in this operators manual as well as observing normal electrical safety precautions. Do not use this meter if you are unfamiliar with electrical circuits and proper test procedures.

2.1 For Your Safety

- 1) Use extreme caution when checking electrical circuits.
WARNING 2) Do not stand in wet or damp work areas when working with electricity. Wear rubber soled boots or shoes.
WARNING 3) Do not apply more voltage or current than the set range of the multimeter will allow
WARNING 4) Do not touch the metal probes of the test leads when making a measurement.
WARNING 5) Replace worn test leads. Do not use test leads with broken or tattered insulation. Only test leads meeting ETL, cETL, CE, CAT III 600V 1A can be used in this unit.



Dial Settings

3.1 AC Volts

There are two ranges for measuring AC voltage: 200 V and 500 V. For more accurate measurements under 200 volts, use the 200 Volt setting.

1. Connect the black test lead to the "COM" terminal and the red test lead to the "V/ Ω " input terminal.
2. Set the function/range switch to the appropriate AC V range shown above.
3. Touch the test leads to the circuit under test.
4. Read the value of the measurement displayed.
5. Typical AC Voltage measurements include wall outlets, appliance outlets, motors, light fixtures and switches. When measuring outlets the specially spaced lead holders allow for single one hand testing

3.2 DC Volts

There are four ranges for measuring DC voltage: 2000m V, 20V, 200 V, and 600 V. For more accurate measurements, use the lowest range possible without exceeding the value.

1. Connect the black test lead to the "COM" terminal and red the test lead to the "V/ Ω " input terminal.
2. Set the function/range switch to the appropriate DC V range shown above.
3. Touch the test leads to the circuit under test. Touch the black (common) test lead to the negative DC source first and red (positive) test lead to the "live" source second.
4. Read the value of the measurement displayed. If the leads are reversed a "-" indicator will appear on the display.
5. Typical DC Voltage measurements include car batteries, automotive switches and household batteries.

3.3 Resistance

There are five ranges for measuring resistance 200, 2000, 20K, 200K and 2 Meg Ohms. For more accurate measurements use the lowest range possible without exceeding the value.

WARNING When measuring resistance always make sure the power is off.

1. Connect the black test lead to the "COM" terminal and red the test lead to the "V/ Ω " input terminal.
2. Set the function/range switch to the appropriate resistance (ohms) range shown above.
3. Touch the test leads to the resistor or non-energized component to be measured. Use the 2000K range when testing for resistance values in electronic components such as resistors and potentiometer. If the value of the component falls within the range of another setting, reset the function/range switch to that setting for a more accurate reading.
4. Read the value of the measurement displayed. With resistance measurements, the polarity of the test leads is not a factor.
5. Typical resistance/continuity measurements include resistors, potentiometer, switches, extension cords and fuses.

4. Battery Replacement

Note: When the battery's voltage drops below the operating voltage, the mark "⊕-⊖" will appear on the LCD. Please replace the battery.

Caution: When changing the battery, disconnect the test leads from the circuit completely.

1. Remove the screws in the back cover of the tester and carefully separate the back cover from the front.
2. Remove the battery from the contacts, noting the polarity of the battery terminals and contacts.
3. Replace with one fresh 9 volt battery.

Note: Do not use rechargeable or lithium batteries in this unit.

4. Carefully replace the back cover and tighten the screws. Do not overtighten the screws as this may strip the threads in the tester housing.